

# VIDEO-SYSTEMS

ILLUMINATION INSUFFLATION DOCUMENTATION



[www.mgb-berlin.de](http://www.mgb-berlin.de)

The logo for MGB, consisting of three horizontal lines above the letters 'MGB' in a bold, sans-serif font.

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## TOWER



*Monitor*  
*Flat Screen*

*MS-V*  
*1 CCD-Camera*

*MS-L*  
*Light Source 180 Xenon*

*ML-G*  
*Insufflator*

*DISTO II*  
*Digital Storage System*

*EC-2000 A*  
*Endo-Cart*

## VIDEO-LUX

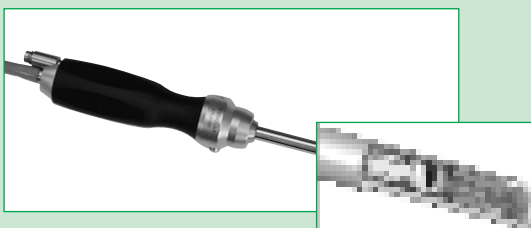
Order-No. 670-60000



**New improved Camera-Head-Design with Zoom Lens!**

### Chip-in-the-Stick

- MGB Video-laparoscope provides always sharp image
- No need to adjust the focus
- The high end objectiv lens with extrem focal depth provides an always sharp image for standard laparoscopic procedures
- Ergonomicy designed handle without the traditional 90° angle light guide connector
- Easy to operate console by OSD-function
- Low operating costs by using standard light guide components
- Video-Lux laparoscope is completely autoclavable
- No need to drape anymore
- Enhanced life time and less service costs
- Video-Lux console operates the Video-Lux laparoscope and MGB-single video camera EF II
- Both video systems can be operated parallel
- Everyone is able to adjust easilly the image of Video-Lux after its own truth in colour, brightness and sharpness
- The image can be defined user specific
- USB II interface allows the video storage direct to PC or Notebook (option)



ZOOM coupler optional.

### Head Button

- Individual selectable head button:
- "W/B": White balance
  - "Print": Remote to recorder device
  - "Sharp": Sharpness

### Enhanced Image Quality

Chip-in-the-stick using newest technology to present best images from inside the body, by positioning the Digital Sensor (CCD) direct behind the objective lens. The traditional rod lens system is not used anymore. In consequence the image quality is enhanced by less distortion and provide higher contrast.

## GENERAL

| Order-No.                       | Set                                      |
|---------------------------------|--|
| <b>670-60000</b>                | Video-Lux (PAL) – complete Set, 0°       |
| <b>670-61000</b>                | Video-Lux (PAL) – complete Set, 30°      |
| <b>670-60100</b>                | Video-Lux (NTSC) – complete Set, 0°      |
| <b>670-61100</b>                | Video-Lux (NTSC) – complete Set, 30°     |
| Main Connection                 |  |
| Power supply                    | ~100 - 120 V/~200 - 240 V                |
| Frequency                       | 50 - 60 Hz                               |
| Power consumption               | 6 VA                                     |
| Fuse (~100 - 120 V)             | 2 x T2.0 AL/250 V (IEC 127)              |
| Fuse (~200 - 240 V)             | 2 x T1.0 AL/250 V (IEC 127)              |
| Classification                  |  |
| Safety class                    | 1 with potential equalization connection |
| Protection                      | IP X 1 (console)                         |
| Type                            | BF                                       |
| Approval                        | CE                                       |
| Operating Conditions            |  |
| Operating temperature           | +10°C ~ +40°C                            |
| Operating humidity              | 30% ~75%                                 |
| Interface » Video-laparoscope « |  |
|                                 | 2 x composite (BNC)                      |
|                                 | 2 x Y/C (SVHS)                           |
|                                 | Optional USB II                          |
| Interface » EF II «             |  |
|                                 | 1 x composite (BNC)                      |
|                                 | 1 x Y/C (SVHS)                           |
| Extent of Delivery              |  |
| Video-Lux                       | High performance light guide             |
|                                 | Video-laparoscope Ø 10 mm                |
|                                 | Video-Lux console                        |
|                                 | EF II camera-head                        |
|                                 | Zoom lens                                |

## SPECIFICATION

| Dimension and Weight » Console «               |                            |
|--|----------------------------|
| Dimension (w/h/d)                              | 400 x 115 x 345 mm         |
| Weight   | 7.4 kg                     |
| Dimension and Weight » Video-laparoscope 0° «  |                            |
| Working length                                 | 300 mm                     |
| Weight   | 550 g                      |
| Dimension and Weight » Video-laparoscope 30° « |                            |
| Working length                                 | 300 mm                     |
| Weight   | 790 g                      |
| Dimension and weight » Camera-Head «           |                            |
| Head dimension (d/l)                           | 38 x 52 mm                 |
| Head-weight                                    | 250 g (with cable 3 m)     |
| Lens connection                                | C-mount                    |
| Waterproof                                     | IP X 7                     |
| 1 Head button selectable                       | “W/B” or “Print” or “Gain” |

| Order-No.        | Accessories                           |
|------------------|---------------------------------------|
| <b>402-11512</b> | High performance light guide          |
| <b>670-60200</b> | Video-laparoscope 0° (PAL), Ø 10 mm   |
| <b>670-61200</b> | Video-laparoscope 30° (PAL), Ø 10 mm  |
| <b>670-60400</b> | Video-Lux-console (PAL)               |
| <b>670-60300</b> | Video-laparoscope 0° (NTSC), Ø 10 mm  |
| <b>670-61300</b> | Video-laparoscope 30° (NTSC), Ø 10 mm |
| <b>670-60500</b> | Video-Lux console (NTSC)              |
| <b>670-51030</b> | EF II Camera-Head (PAL)               |
| <b>670-52030</b> | EF II Camera-Head (NTSC)              |

# ML-V 3 CCD ENDO-CAMERA

Order-No. 670-31400



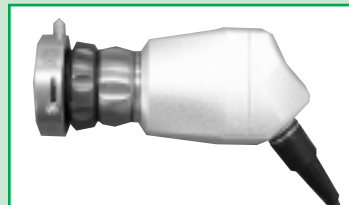
## Specification

- 3 CCD Camera, 1/3" technology
- Full automatic control with digital signal processing
- Simple and intelligent key-function
- Automatic white balance control with **OSD (On Screen Display)**
- Horizontal 750 TV lines
- Waterproof Camera-Head
- Ergonomic Head-Design
- Optional digital interface **USB II (out)** incl. software

## Intended Use

The Endoscopic Camera *ML-V* is intended to attach to standard endoscopes to permit visualization of body cavities, hollow organs and canals during endoscopic procedures. The endoscopic image can be displayed on any standard medical video monitor.

The preselected area will always guarantee a brilliant image in combination with different kind of endoscopes, being used in various endoscopic application.



### 3 CCD Camera-Head

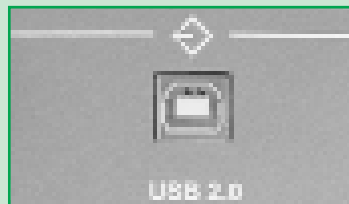
With optical zoom.  
f = 16-34 mm  
(Order-No.: 470-28000)

ZOOM coupler optional.



### Camera-Head

Two Head Buttons:  
**A:** Remote  
**B:** W/B, Gain, Freeze (selectable)



### USB II out optional

Inclusive software.  
(Order-No.: 670-31500)

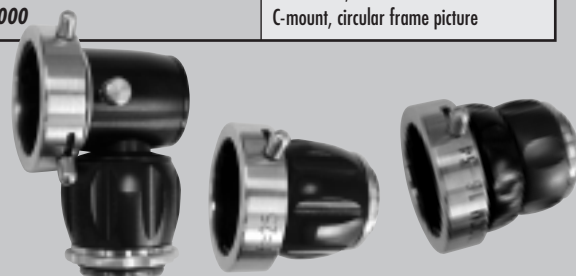
## GENERAL

| Order-No.               |   |
|-------------------------|---|
| 670-31400               | ML-V: 220 V/PAL   |
| 670-31401               | ML-V: 110 V/PAL   |
| 670-32400               | ML-V: 220 V/NTSC  |
| 670-32401               | ML-V: 110 V/NTSC  |
| 670-31500               | ML-V: USB II option   |
| Main Connection         |   |
| Power supply            | ~100 - 120 V/~200 - 240 V   |
| Frequency               | 50 - 60 Hz  |
| Power consumption       | 26 VA   |
| Fuse (~100 - 120 V)     | 2 x T 2.0 AL / 250 V (IEC 127)  |
| Fuse (~200 - 240 V)     | 2 x T 4.0 AL / 250 V (IEC 127)  |
| Classification          |   |
| Safety class            | 1 with potential equalization connection  |
| Protection              | Camera-Head: IP X 7 waterproof  |
| Type                    | BF  |
| Approval                | CE  |
| Dimension and Weight    |   |
| Dimension (w/h/d)       | 400 x 160 x 360 mm  |
| Weight                  | 11.8 kg   |
| Operating Conditions    |   |
| Operating temperature   | +10° C ~ +40° C   |
| Operating humidity      | 30% ~ 75%   |
| Extent of Delivery      |   |
| ML-V                    | <ul style="list-style-type: none"> <li>■ S-VHS cable</li> <li>■ BNC cable</li> <li>■ RGB cable</li> <li>■ Power cable</li> <li>■ User manual</li> </ul> |
| With USB II option      | ■ USB cable, software   |
| Interface               |   |
| ML-V                    | <ul style="list-style-type: none"> <li>■ 1 x RGB</li> <li>■ 1 x Y/C (S-VHS)</li> <li>■ 2 x composit (BNC)</li> <li>■ 1 x remote</li> </ul>              |
| ML-V with USB II option | Additional:<br>■ 1 x USB II (out)   |

## SPECIFICATION

| Main Unit                       |  |
|---------------------------------|--|
| Resolution                      | Horizontal 750 TV Lines  |
| SNR                             | < 0.7 Lux  |
| Min. of illumination            | 1.2 Lux  |
| Automatic gain control          | 0 ~ 20 dB  |
| Manual gain control             | Set button   |
| Shutter speed control           | Automatic [1/60 ~ 1/10,000s]   |
| Image sensor CCD                | 1/3 " Interline CCD x 3  |
| Pixel                           | 768 x 494 (h x v) x 3  |
| White balance                   | Automatic adjustment (Set button) on screen display confirmation     |
| Brightness control              | Area selecting control   |
| Sharpness                       | Set button   |
| Freeze function                 | Set by Head Button   |
| CCD Camera-Head                 |  |
| Head-dimension (w/h/d)          | 40 x 45 x 75 mm  |
| Head-weight                     | 320 g (incl. cable 3m)   |
| Lens connection                 | C-mount  |
| Waterproof                      | IP X 7   |
| 2 Head buttons (1 x selectable) | <b>Button A:</b> "print"<br><b>Button B:</b> "W/B", "Gain", "Freeze" |

| Order-No. | Accessories                                |
|-----------|--|
|           | <b>Video Camera Lens</b>                   |
| 470-23400 | f = 18 mm, C-mount, circular frame picture |
| 470-27400 | f = 22 mm, C-mount, full frame picture     |
| 470-24400 | f = 25 mm, C-mount, full frame picture     |
| 470-25400 | f = 30 mm, C-mount, full frame picture     |
| 470-28000 | ZOOM f = 16 - 34 mm, C-mount               |
|           | <b>Urology Video Camera Lens 90°</b>       |
| 470-30000 | f = 18 mm, C-mount, circular frame picture |



## MS-V 1 CCD ENDO-CAMERA

Order-No. 670-15000



### Higher Contrast

The Endo-Camera *MS-V* can provide an enhanced resolution. Even fine tissue structures can be visualized with its detailed transmission.

### Great Light Sensitivity

Under difficult light conditions the Endo-Camera *MS-V* is showing a well illuminated picture. For small diameter telescope's the **GAIN-Key** should be used.

### New Camera Head-Design

The Endo-Camera *MS-V* is specially designed for endoscopic procedures. The angled camera-head gives a perfect sense of up and down to the user. The new camera is much lighter and smaller. The head button is individual selectable.

### White Balance Memory Function

The white balance setting is stored in the camera's micro-processor. Thus, the correct adjustment is kept even if the Endo-Camera *MS-V* is switched off.

### USB II out

With **USB II**, you can directly connect the *MS-V* to PC. This allows to see and store the video on PC.



### Head Button

Individual selectable head button: "W/B", "Print" and "Gain" (switch on the backside).



### Moiré Function

Allows to use flexible Fibrescopes.



Freeze

Screen Splitting

### Freeze and Screen Splitting

*MS-V* allows – controlled by a footswitch – **freeze** and **screen splitting** on the monitor for detailed comparison.

## GENERAL

| Order-No.             | MS-V Standard-Version   |
|-----------------------|---|
| 670-15000             | Color-system PAL  |
| 670-16000             | Color-system NTSC   |
| 670-31500             | USB II option   |
| MS-V Freeze-Version   |   |
| 670-15010             | Color-system PAL  |
| 670-16010             | Color-system NTSC   |
| 670-31500             | USB II option   |
| Main Connection       |   |
| Power supply          | 100 - 250 V AC (switch)   |
| Frequency             | 50/60 Hz  |
| Power consumption     | 25 VA   |
| Fuse (~100 - 120 V)   | 2 x T 2.0 AL/250 V (IEC 127)  |
| Fuse (~200 - 240 V)   | 2 x T 1.0 AL/250 V (IEC 127)  |
| Classification        |   |
| Safety class          | 1 with potential equalization connection  |
| Protection            | IP X 1  |
| Safety-class          | BF  |
| Approval              | CE  |
| Dimension and Weight  |   |
| Dimension (w/h/d)     | 380 x 70 x 340 mm   |
| Weight                | 8.0 kg  |
| Operating Conditions  |   |
| Operating temperature | +10° C ~ +40° C   |
| Operating humidity    | 30 % ~ 75 %   |
| Extent of Delivery    |   |
| MS-V                  | <ul style="list-style-type: none"> <li>■ S-VHS cable</li> <li>■ BNC cable</li> <li>■ RGB cable</li> <li>■ Power cable</li> <li>■ User manual</li> </ul> |
| With USB II option    | ■ USB cable, software   |
| Interface             |   |
| MS-V Standard-Version | <ul style="list-style-type: none"> <li>■ 2 x composit (BNC)</li> <li>■ 2 x Y/C (S-VHS)</li> <li>■ 1 x remote</li> </ul>                                 |
| MS-V Freeze-Version   | Additional: <ul style="list-style-type: none"> <li>■ 1 x RGB</li> <li>■ 1 x foot-pedal for freeze connector</li> </ul>                                  |
| USB II option         | 1 x USB II (out)  |

## SPECIFICATION

| CCD Camera Unit          |                            |
|--------------------------|----------------------------|
| CCD - Sensor size        | 1/3 "                      |
| NTSC (h x v)             | 768 x 494/410.000 pixels   |
| PAL (h x v)              | 752 x 582/440.000 pixels   |
| Sensitivity              | < 0.7 Lux                  |
| Shutter speed            | Automatic control          |
| CCD Camera-Head          |                            |
| Head-dimension (d/l)     | 38 x 52 mm                 |
| Head-weight              | 250 g (with cable)         |
| Lens connection          | C-mount                    |
| Waterproof               | IP X 7                     |
| 1 Head button selectable | "W/B" or "Print" or "Gain" |

| Order-No. | Accessories   |
|-----------|---|
|           | <b>Video Camera Lens</b>  |
| 470-23400 | f = 18 mm,<br>C-mount, circular frame picture   |
| 470-27400 | f = 22 mm,<br>C-mount, full frame picture   |
| 470-24400 | f = 25 mm,<br>C-mount, full frame picture   |
| 470-25400 | f = 30 mm,<br>C-mount, full frame picture   |
| 470-28000 | ZOOM f = 16 - 34 mm,<br>C-mount   |
| 470-30000 | <b>Urology Video Camera Lens 90°</b><br>f = 18 mm,<br>C-mount, circular frame picture |



## ELICA II: VIDEO-CAMERA COMBINED WITH DUO LIGHT-SOURCE

Order-No. 670-51500



*New improved Camera-Head-Design!*

### Higher Contrast

The Endo-Camera *ELICA II* can provide an enhanced resolution. Even fine tissue structures can be visualized with its detailed transmission.

### Great Light Sensitivity

Under difficult light conditions the Endo-Camera *ELICA II* is showing a well illuminated picture. For small diameter telescope's digital filters allow to enhance the sharpness.

### New Camera-Head-Design

The Endo-Camera *ELICA II* is specially designed for endoscopic procedures. The angled camera-head gives a perfect sense of up and down to the user.

### White Balance Memory Function

The white balance setting is stored in the camera's micro-processor. Thus, the correct adjustment is kept even if the Endo-Camera *ELICA II* is switched off.

### USB II out (option)

With USB II, you can directly connect *ELICA II* to a PC. This allows to see and store the video on PC.



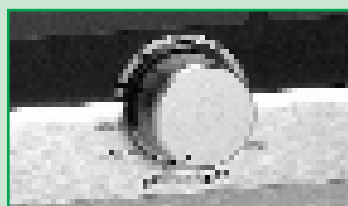
### Head Button

Individual selectable head button:  
 ■ "W/B": White balance  
 ■ "Print": Remote to recorder device  
 ■ "Sharp": Sharpness (switch on the backside).



### Moiré Function

Allows to use flexible Fibrescopes.



### Brightness

Light-intensity regulation.



Freeze

Screen Splitting

### Freeze and Screen Splitting

*ELICA II* allows freeze and screen splitting on the monitor for detailed comparison.

## GENERAL

| Order-No.                 | ELICA II Standard-Version   |
|---------------------------|---|
| 670-51500                 | Color-system PAL  |
| 670-52500                 | Color-system NTSC   |
| 670-31500                 | USB II option   |
| ELICA II Freeze-Version   |   |
| 670-51510                 | Color-system PAL  |
| 670-52510                 | Color-system NTSC   |
| 670-31500                 | USB II option   |
| Main Connection           |   |
| Power supply              | 100-240 V   |
| Frequency                 | 50/60 Hz  |
| Power consumption         | 400 VA  |
| Fuse                      | 2 x T 3.15 L/250 V (IEC 127)  |
| Classification            |   |
| Safety class              | 1 with potential equalization connection  |
| Protection                | IP X 1  |
| Type                      | BF  |
| Approval                  | CE  |
| Dimension and Weight      |   |
| Dimension (w/h/d)         | 350 x 400 x 140 mm  |
| Weight                    | 12.0 kg   |
| Operating Conditions      |   |
| Operating temperature     | +10° C ~ +40° C   |
| Operating humidity        | 30 % ~ 75 %   |
| Extent of Delivery        |   |
| ELICA II                  | <ul style="list-style-type: none"> <li>■ S-VHS cable</li> <li>■ BNC cable</li> <li>■ RGB cable</li> <li>■ Power cable</li> <li>■ User manual</li> </ul> |
| With USB II option        | ■ USB cable, software   |
| Interfaces                |   |
| ELICA II Standard-Version | <ul style="list-style-type: none"> <li>■ 2 x composi (BNC)</li> <li>■ 2 x Y/C (S-VHS)</li> <li>■ 1 x remote</li> </ul>                                  |
| ELICA II Freeze-Version   | Additional: <ul style="list-style-type: none"> <li>■ 1 x RGB</li> <li>■ 1 x foot-pedal for freeze connector</li> </ul>                                  |
| USB II option             | 1 x USB II (out)  |

## SPECIFICATION

| ELICA Camera Unit        |  |
|--------------------------|--|
| CCD - Sensor size        | 1/3 "  |
| NTSC (h x v)             | 768 x 494/410.000 pixels                       |
| PAL (h x v)              | 752 x 582/440.000 pixels                       |
| Sensitivity              | < 0.7 Lux                                      |
| Shutter speed            | Automatic control                              |
| CCD Camera-Head          |  |
| Head-dimension (d/l)     | 38 x 52 mm                                     |
| Head-weight              | 250 g (with cable)                             |
| Lens connection          | C-mount  |
| Waterproof               | IP X 7   |
| 1 Head button selectable | "W/B" or "Print" or "Sharp"                    |
| ELICA Light Source Unit  |  |
| HALOGEN Lamp             | 2 x 250 W                                      |
| Color temperature        | 3.500 K  |
| Life cycle of the lamp   | 50 h   |
| Light output             | Regulation                                     |
| Light guide port         | 1 x universal light guide port<br>1 x MGB/Wolf |

| Order-No. | Accessories   |
|-----------|---|
|           | <b>Video Camera Lens</b>  |
| 470-23400 | f = 18 mm,<br>C-mount, circular frame picture   |
| 470-27400 | f = 22 mm,<br>C-mount, full frame picture   |
| 470-24400 | f = 25 mm,<br>C-mount, full frame picture   |
| 470-25400 | f = 30 mm,<br>C-mount, full frame picture   |
| 470-28000 | ZOOM f = 16 - 34 mm,<br>C-mount   |
| 470-30000 | <b>Urology Video Camera Lens 90°</b><br>f = 18 mm,<br>C-mount, circular frame picture |



## FENCER: THE COMPLETE LAPAROSCOPIC UNIT



### Gas-Insufflator

The 30 l-Insufflation part in FENCER is equipped with a precise electrical control for an optimal intra-abdominal working pressure. This allows exact working. Three selectable Flow rates of 1.5, 5 and 30 l/min are available for the exact control of the Insufflator.

### High Resolution Camera by Digital Controlling

FENCER is based on the latest digital technology. The microprocessor controls brightness through shutter control and white balance that result in clear and sharp images for endoscopy everytime.

### Xenon Light Source with Manual Regulation

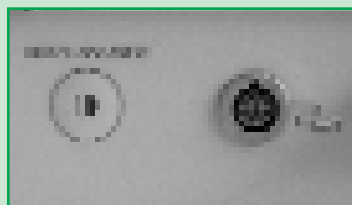
The 180 W Xenon Light Source provide illumination. The natural light – composed of the entire spectrum of white light – is the optimum for laparoscopic surgery. Users can replace lamps quickly and easily.

### Irrigation

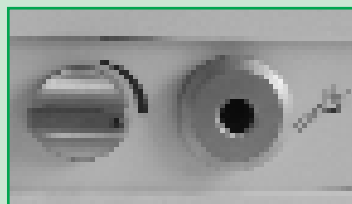
The Irrigation part in FENCER has a high pressure Irrigation function. In combination with the MGB-Suction-/Irrigation instruments and easy handling, high flow Irrigation is guaranteed and constant.



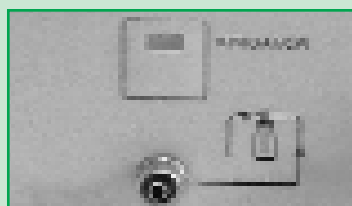
Gas-Insufflator



Video-Camera



Light Source



Irrigator

Order-No. 675-11000

### FOUR IN ONE

- Gas-Insufflator
- Video-Camera
- Light Source
- Irrigator

FENCER is a complete laparoscopic system. A combination of:

- Insufflator
- CCD Video-Camera
- Xenon-Light Source
- Irrigation

in one compact unit.

Each function working independently from the other. FENCER allows high performance for laparoscopic applications. Additionally, FENCER is designed for simple and user friendly operation.

## GENERAL

| Order-No.                    | FENCER - Versions  |
|------------------------------|--|
| 675-11000                    | PAL -type camera, 220 V  |
| 675-11001                    | PAL -type camera, 110 V  |
| 675-12000                    | NTSC-type camera, 220 V  |
| 675-12001                    | NTSC-type camera, 220 V  |
| Main Connection              |  |
| Power supply                 | 100-120 V/200 - 240 V AC   |
| Frequency                    | 50/60 Hz   |
| Power consumption            | 250 W  |
| Fuse                         | 2 x T3.15 A (250 V)/2 x T3.15 A (110 V)  |
| Classification               |  |
| Safety class                 | 1 Type BF  |
| Type                         | BF   |
| Approval                     | CE   |
| Dimension and Weight         |  |
| Dimension (w/h/d)            | 530 x 200 x 440 mm   |
| Weight                       | 18.0 kg  |
| Extent of Delivery           |  |
| FENCER (PAL - or NTSC -type) | <ul style="list-style-type: none"> <li>■ Camera-head, incl. cable</li> <li>■ Silicon-tube for Insufflator</li> <li>■ Silicon-tube for Irrigator</li> <li>■ Regulator with manometer and snap-in-connector</li> <li>■ Power-supply cable and BNC-cable</li> </ul> |
| Light Source 180 W XENON     |  |
| Lamp type                    | Xenon 180 W  |
| Lamp color temperature       | Approx. 6000 K   |
| Lamp replacement             | Side door, with cartridge  |
| Life-cycle of lamp           | Approx. 500 hours  |
| Manual regulation            |  |
| Irrigation                   |  |
| Pressure                     | 700 mbar   |
| Insufflator 30 l             |  |
| Flow rate                    | <ul style="list-style-type: none"> <li>■ ~ 30 L/min. (maximum)</li> <li>■ 1.5 L/min. (minimum)</li> </ul>  |
| Insufflation pressure        | 1-30 mm Hg   |
| Gas connection               | MGB snap-in/DIN  |
| Gas input pressure           | 4-10 bar/high pressure (pressure reducer included)   |

## SPECIFICATION

| FENCER Camera Unit       |  |
|--------------------------|--|
| CCD - Sensor             | Size: 1/3 "  |
| NTSC (H X V)             | 768 x 494/410.000 pixels   |
| PAL (H X V)              | 762 x 582/440.000 pixels   |
| Sensitivity              | < 0.7 Lux  |
| Shutter speed            | Automatic control between:<br>1/60 -1/100.000 sec. (NTSC),<br>1/50 -1/100.000 sec. (PAL) |
| Waterproof               | IP X 7   |
| Horizontal resolution    | 450 TV - lines   |
| Signal output            | Y/C (S-video) x 1 at 75 Ω<br>composite x 1 at 75 Ω                                       |
| Lens connection          | C-mount  |
| Camera-head size (d x l) | 38 x 45 mm   |
| Camera-head cable length | 2.5 m  |
| Camera-head weight       | 250 g, incl. cable   |

| Order-No. | Accessories  |
|-----------|--|
|           | <b>Video Camera Lens</b>                             |
| 470-24400 | f = 25 mm,<br>for full-size-screen                   |
| 470-28000 | ZOOM f = 16-34 mm                                    |
| 402-11300 | Light guide (for example):<br>Ø 4.8 mm, length 2.3 m |
| 686-00200 | Spare lamp Xenon (180 W)                             |
| 675-11203 | Filter, 25 pieces                                    |
| 670-95300 | Silicone-tube set for Insufflation                   |
| 675-11201 | Silicone-tube set for Irrigation                     |
| 675-11202 | Adapter for Insufflation                             |

## VIDEO CAMERA LENS

### *Video Camera Zoom Lens*

- f = 16 - 34 mm



### *Video Camera Lens*

- f = 18 mm (used in Arthroscopy, Urology, ENT)
- f = 22 mm (used in ENT)
- f = 25 mm (used in Laparoscopy)
- f = 30 mm
- f = 40 mm



### *Urology Video Camera Lens 90°*

- f = 18 mm



## GENERAL

## SPECIFICATION

| Order-No. | Video Camera Zoom Lens |
|-----------|------------------------|
| 470-28000 | f = 16-34 mm           |

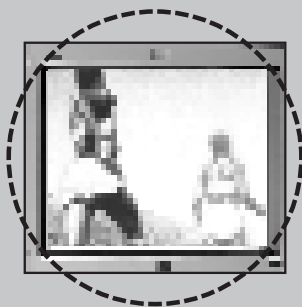
| Video Camera Zoom Lens |  |
|------------------------|--|
| f = 16 - 34 mm         | <ul style="list-style-type: none"> <li>■ Zoom</li> <li>■ C-mount</li> <li>■ Used in all endoscopic fields (parafocal)</li> <li>■ One of the shortest and very light-weight zoom in the market</li> </ul> |

| Order-No. | Video Camera Lens |
|-----------|-------------------|
| 470-23400 | f = 18 mm         |
| 470-27400 | f = 22 mm         |
| 470-24400 | f = 25 mm         |
| 470-25400 | f = 30 mm         |
| 470-26400 | f = 40 mm         |

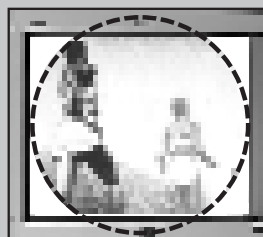
| Video Camera Lens   |  |
|---|--|
| f = 18 mm<br>f = 22 mm<br>f = 25 mm<br>f = 30 mm<br>f = 40 mm | <ul style="list-style-type: none"> <li>■ Brilliant optic</li> <li>■ High transluence</li> <li>■ Quick endoscope coupling</li> <li>■ Waterproof</li> <li>■ C-mount</li> <li>■ Ergonomic design</li> </ul> |

| Order-No. | Urology Video Camera Lens 90° |
|-----------|-------------------------------|
| 470-30000 | f = 18 mm                     |

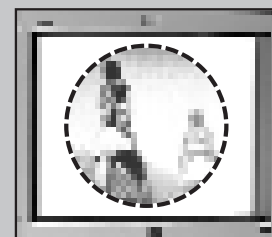
| Urology Video Camera Lens 90° |   |
|-------------------------------|---|
| f = 18 mm                     | <ul style="list-style-type: none"> <li>■ Angled video lens with rotatable eyepiece-connector</li> <li>■ Rotation lockable</li> <li>■ Focal length f = 18 mm, circular frame picture</li> <li>■ Connection to camera-head C-mount</li> <li>■ One-hand operation</li> <li>■ Air ventilation on ocular window</li> <li>■ Soakable</li> </ul> |



Laparoscopy (Full Size)  
with 1/3" CCD/f = 25 mm



Limited Size  
Sinoscopy Ø 4 mm/f = 22 mm



Arthroscopy/Urology (Circle Size)  
Arthroscopy Ø 4 mm/f = 18 mm

## ML-L LIGHT SOURCE 300 W

Order-No. 685-00400



300 W Xenon  
(150 W Halogen)

### Natural Illumination

300 W Xenon light sources provide illumination in daylight quality. The natural light – composed of the entire spectrum of white light – is the optimum for endoscopic surgery.

### Automatic Light Adjustment

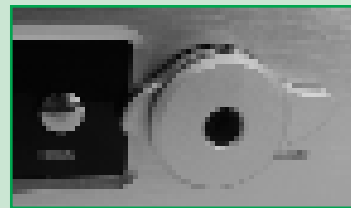
In combination with the camera the *ML-L* continually optimises the brightness for viewing flat and deep structures inside the body. The brightness may also be adjusted manually.

### Lamp Exchange

The lamp has an average life of 500 hours. A counter is situated on the front display. With integrated replacement indicator: 3 integrated silent fans control the temperature stability.

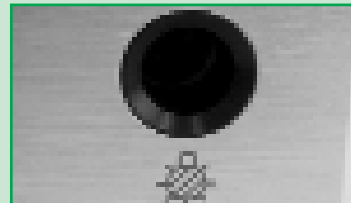
### Safety Operation

The 300 W Xenon lamp and the 150 W Halogen lamp for emergency guarantee safe operation.



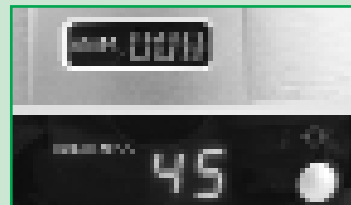
### Universal Light Guide Connector Port

The universal light guide connector port allows the use of different light guides without paying any attention for having the right adapter.



### Emergency Lamp

An integrated, unique 150 Watt emergency lamp for backup.



### User Friendly Display

The *ML-L* control panel is robust, clearly and ergonomically arranged.

## GENERAL

| <i>Order-No.</i>            |  |
|-----------------------------|--|
| <b>685-00400</b>            | ML-L Light source  |
| <i>Main Connection</i>      |  |
| Power supply                | 90-260 V AC  |
| Frequency                   | 50-60 Hz   |
| Power consumption           | 420 VA   |
| Fuse                        | 2 x T 6.3 AL / 250 V (IEC 127)   |
| <i>Classification</i>       |  |
| Safety class                | 1 with potential equalization connection   |
| Protection                  | IP X 1   |
| Type                        | BF   |
| Approval                    | <b>CE</b>  |
| <i>Dimension and Weight</i> |  |
| Dimension (w/h/d)           | 400 x 160 x 360 mm   |
| Weight                      | 13.9 kg  |
| Operating temperature       | +10° C ~ +40° C  |
| Operating humidity          | 30 % ~ 75 %  |
| <i>Operating Conditions</i> |  |
| Operating temperature       | +10° C ~ +40° C  |
| Operating humidity          | 30 % ~ 75 %  |
| <i>Extent of Delivery</i>   |  |
| ML-L                        | <ul style="list-style-type: none"> <li>■ Power cable</li> <li>■ User manual</li> </ul> |
| <i>Interface to Camera</i>  |  |
| ML-L                        | Video-input: composit (BNC)  |

## SPECIFICATION

| <i>Main Lamp</i>            |                |
|-----------------------------|----------------|
| Xenon short arc lamp        | 300 W          |
| Colour temperature          | 6.000 K        |
| Life cycle of the lamp      | Average 500 h  |
| Light output                | Regulation     |
| Counter for operating hours | Front display  |
| Replacement indicator       | Front display  |
| <i>Emergency Lamp</i>       |                |
| Halogen                     | 150 W          |
| Colour temperature          | Appr. 3.600° K |
| Life cycle of the lamp      | 50 h           |

| <i>Order-No.</i> | <i>Accessories</i>                                   |
|------------------|--|
| <b>685-00200</b> | Spare lamp 300 W Xenon                               |
| <b>XXX-XXXXX</b> | Spare lamp 150 W Halogen                             |
| <b>402-11410</b> | High performance light guide, LG 310 W, length 2.3 m |
| <b>402-11510</b> | High performance light guide, LG 310 W, length 3.0 m |
| <b>KE 363159</b> | Potential equalization cable, 1 m                    |

## MS-L LIGHT SOURCE 180 W

Order-No. 686-10000



### Natural Illumination

180 W Xenon light sources provide illumination in daylight quality. The natural light – composed of the entire spectrum of white light – is the optimum for endoscopic surgery.

### Xenon Lamp

The lamp has an average life of 500 hours. A counter is situated on the front display.

### Light Regulation

Manual light regulation provides exact illumination control.

### User Friendly Display

The MS-L control panel is robust and clearly arranged. Simple controls allow effective cleaning.

### Lamp Exchange

The lamp has an average life of 500 hours. A counter is situated on the display. With integrated replacement indicator: 3 integrated silent fans control the temperature stability.



**Universal Light Guide Connector Port**  
The universal light guide connector port allows the use of different light guides without paying any attention for having the right adapter.



**Replacement Indicator**



**Light Regulation**  
Manual light regulation provides exact illumination control.

## GENERAL

| <i>Order-No.</i>            |  |
|-----------------------------|--|
| <b>686-10000</b>            | MS-L Light source  |
| <i>Main Connection</i>      |  |
| Power supply                | 100 -250 V AC  |
| Frequency                   | 50/60 Hz   |
| Power consumption           | 350 VA   |
| Fuse                        | 2 x (T 315 AL /250)  |
| <i>Classification</i>       |  |
| Safety class                | 1 with potential equalization connection   |
| Protection                  | IP X 1   |
| Type                        | BF   |
| Approval                    | CE   |
| <i>Dimension and Weight</i> |  |
| Dimension (w/h/d)           | 380 x 100 x 340 mm   |
| Weight                      | 10.0 kg  |
| <i>Operating Conditions</i> |  |
| Operating temperature       | +10° C ~ +40° C  |
| Operating humidity          | 30 % ~ 75 %  |
| <i>Extent of Delivery</i>   |  |
| MS-L                        | <ul style="list-style-type: none"> <li>■ Power cable</li> <li>■ User manual</li> </ul> |

## SPECIFICATION

| <i>Main Unit</i>            |               |
|-----------------------------|---------------|
| Xenon Lamp                  | 180 W         |
| Color temperature           | 6.000 K       |
| Life cycle of the lamp      | 500 h         |
| Light output                | Regulation    |
| Counter for operating hours | Front display |
| Replacement indicator       | Front display |
| Light guide connection      | Universal     |

| <i>Order-No.</i> | <i>Accessories</i>                                   |
|------------------|--|
| <b>686-00200</b> | Spare lamp Xenon, 180 W                              |
| <b>402-11300</b> | Light guide, Ø 4.8 mm, length 2.3 m                  |
| <b>402-11100</b> | Light guide, Ø 4.8 mm, length 3.0 m                  |
| <b>402-11410</b> | High performance light guide, LG 310 W, length 2.3 m |
| <b>402-11510</b> | High performance light guide, LG 310 W, length 3.0 m |
| <b>KE 363159</b> | Potential equalization cable, 1 m                    |

## MS-LH LIGHT SOURCE

Order-No. 682-00010



**Lamp Exchange**  
Drawer on the side.

### **Illumination**

The light source *MS-LH* provides halogen light at a lamp output of 250 W. The extremely high luminous efficiency which is unusual for 250 W light sources is obtained by excellent tuning.

### **Consistent Light Quality**

The light source *MS-LH* is designed with a built-in 250 W halogen spare light bulb. In case of a lamp defect, this allows to proceed with the endoscopic intervention.

### **Intended Use**

The light source *MS-LH* provides illumination for fiberoptic endoscopy to gastroenterological and urological cavities, hollow organs and canals.

### **Lamp Quick Exchanger**

Can easily done by side-drawer.

## GENERAL

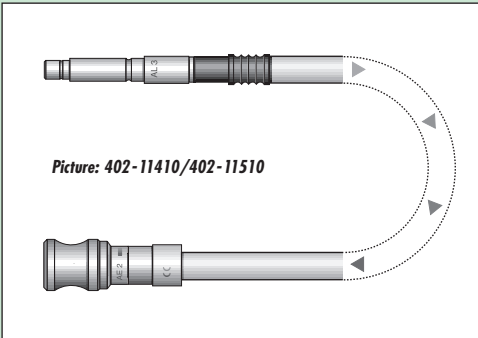
| <i>Order-No.</i>            |  |
|-----------------------------|--|
| <b>682-00010</b>            | MS-LH  |
| <i>Main Connection</i>      |  |
| Power supply                | ~100-240 V   |
| Frequency                   | 50/60 Hz   |
| Power consumption           | 260 VA   |
| Fuse                        | 2 x T 4.0 AL/250 V (IEC 127)   |
| <i>Classification</i>       |  |
| Safety class                | 1 with potential equalization connection   |
| Protection                  | IP X 1   |
| Type                        | BF   |
| Approval                    | <b>CE</b>  |
| <i>Dimension and Weight</i> |  |
| Dimension (w/h/d)           | 350 x 145 x 400 mm   |
| Weight                      | 10.0 kg  |
| <i>Extent of Delivery</i>   |  |
| MS-LH                       | <ul style="list-style-type: none"> <li>■ Power cable</li> <li>■ User manual</li> <li>■ 2 spare lamps (250 W Halogen)</li> <li>■ 2 spare fuses</li> </ul> |

## SPECIFICATION

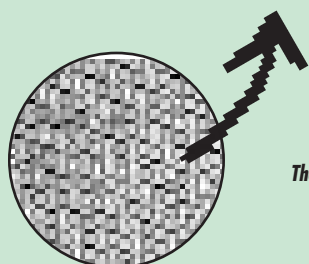
| <i>Characteristics</i> |                                |
|------------------------|--------------------------------|
| Lamp                   | 2 x halogen reflect lamp 250 W |
| Colour temperature     | 3.250 K                        |
| Life cycle of the lamp | 50 h                           |

| <i>Order-No.</i> | <i>Accessories</i>                        |
|------------------|---|
| 402-11300        | Light guide cable, Ø 4.8 mm, length 2.3 m |
| 402-11100        | Light guide cable, Ø 4.8 mm, length 3.0 m |
| 682-00100        | Spare lamp (250 W Halogen)                |
| KE 363159        | Cable, 1 m, for potential equalization    |

## HIGH PERFORMANCE LIGHT GUIDE LG 310 W

| Product   | Order-No. | Length  | Cable      | AE (Adapter endoscope side) | AL (Adapter light source side) |
|---|-----------|---------|------------|-----------------------------|--------------------------------|
|  <p>Picture: 402-11410/402-11510</p> | 402-11410 | ■ 2.3 m | ■ Ø 4.8 mm | ■ AE 2 (MGB/Wolf)           | ■ AL 3 (MGB/Wolf)              |
|   | 402-11510 | ■ 3.0 m | ■ Ø 4.8 mm | ■ AE 2 (MGB/Wolf)           | ■ AL 3 (MGB/Wolf)              |
|   | 402-11512 | ■ 3.0 m | ■ Ø 4.8 mm | ■ AE 6 (Storz)              | ■ AL 3 (MGB/Wolf)              |
|   | 402-11415 | ■ 2.3 m | ■ Ø 4.8 mm | ■ None                      | ■ None                         |
|   | 402-11515 | ■ 3.0 m | ■ Ø 4.8 mm | ■ None                      | ■ None                         |

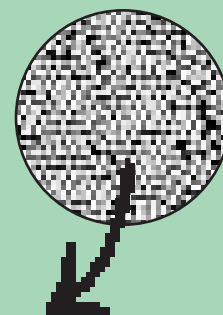
We recommend the High Performance Light Guide *LG 310 W* for the use of Xenon light sources. At the light entry side (connection cable light source) the fibers are melted together resulting in higher resistance towards heat and better transmission compared with a conventional light guide. Special marking: during using, the sleeve on the side of the light source will light orange. Our light guides are available with or without adapters.



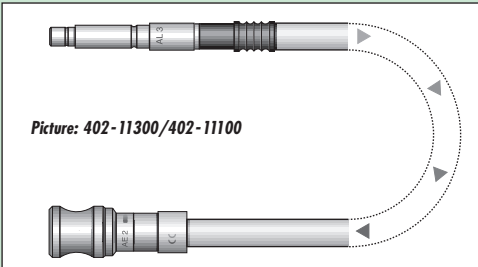
High Performance

The fibers are melted together resulting in higher resistance towards heat and more transmission.

Conventional Light Guide




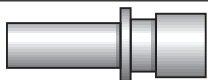




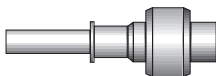
## STANDARD LIGHT GUIDE LG 200

| Product   | Order-No. | Length  | Cable      | AE (Adapter endoscope side) | AL (Adapter light-source side) |
|---|-----------|---------|------------|-----------------------------|--------------------------------|
|  <p>Picture: 402-11300/402-11100</p> | 402-11300 | ■ 2.3 m | ■ Ø 4.8 mm | ■ AE 2 (MGB/Wolf)           | ■ AL 3 (MGB/Wolf)              |
|   | 402-11100 | ■ 3.0 m | ■ Ø 4.8 mm | ■ AE 2 (MGB/Wolf)           | ■ AL 3 (MGB/Wolf)              |
|   | 402-11310 | ■ 2.3 m | ■ Ø 4.8 mm | ■ AE 6 (Storz)              | ■ AL 7 (Storz)                 |
|   | 402-11305 | ■ 2.3 m | ■ Ø 4.8 mm | ■ None                      | ■ None                         |
|   | 402-11105 | ■ 3.0 m | ■ Ø 4.8 mm | ■ None                      | ■ None                         |
|   | 402-11000 | ■ 1.8 m | ■ Ø 3.5 mm | ■ AE 2 (MGB/Wolf)           | ■ AL 3 (MGB/Wolf)              |
|   | 402-11010 | ■ 1.8 m | ■ Ø 3.5 mm | ■ AE 6 (Storz)              | ■ AL 7 (Storz)                 |
|   | 402-11005 | ■ 1.8 m | ■ Ø 3.5 mm | ■ None                      | ■ None                         |

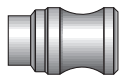
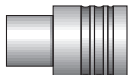


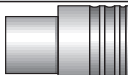
The Standard Light Guide *LG 200* is suitable for Halogen light sources and 180 W Xenon light sources; the ends are bonded with special adhesive. Our light guides are available with or without adapters.

# ADAPTER

## ADAPTER LIGHT SOURCE SIDE (AL)

| Product   | Order-No. | Description | Light Source Side with Connection |
|---|-----------|-------------|-----------------------------------|
|    | 402-00050 | ■ AL 3      | ■ MGB/Wolf                        |
|    | 402-00042 | ■ AL 7      | ■ Storz/Aesculap                  |
|    | 402-00033 | ■ AL 8      | ■ Olympus                         |
|    | 402-00101 | ■ AL 9      | ■ ACMI                            |
|    | 402-00104 | ■ AL 10     | ■ Olympus/ACMI                    |
|  | 402-00102 | ■ AL 11     | ■ Pentax                          |
|  | 402-00034 |             | ■ Solos                           |

## ADAPTER ENDOSCOPE SIDE (AE)

| Product   | Order-No. | Description | Light Source Side with Connection |
|---|-----------|-------------|-----------------------------------|
|  | 402-00051 | ■ AE 2      | ■ MGB/Wolf                        |
|  | 402-00015 | ■ AE 4      | ■ MGB/old MGB-telescopes          |
|  | 402-00005 | ■ AE 5      | ■ MGB                             |
|  | 402-00052 | ■ AE 6      | ■ Storz/Olympus/Aesculap/WISAP    |
|  | 402-00103 | ■ AE 9      | ■ ACMI/CIRCON                     |

## ML-G INSUFFLATOR

Order-No. 670-95600 (220 V)  
670-95601 (110 V)



40 Liter/min  
Insufflation

### Specification

The latest computer controlled technology for safe and precise insufflation. 4 unique selectable flow standards for exact control of intermittent insufflation (2 l, 8 l, 40 l/min automatic mode). The adjustable preselection of intraabdominal pressure (1-30 mm/Hg) meets every requirement (paediatric, gynaecology, general laparoscopy and bariatric procedure).

### High Safety

The *ML-G* guarantees the highest safety based on electrical control. Additionally, it covers all functions mechanically. Abdominal overpressure will be automatically reduced through integrated gas valve.

### Clear Arrangement

Clear arrangement is the essential characteristics of the *ML-G*. Its display gives a quick overview of the rated and actual values of gas flow- and-pressure. The setting of the flow rate is made by a simple touch of a button. The gas volume is shown by a separate display.

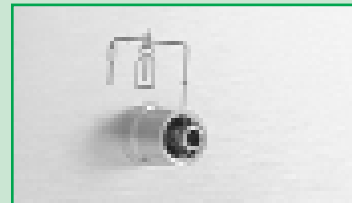
### Compatibility

*ML-G* is compatible to central CO<sub>2</sub> supply or different kind of gas bottles.



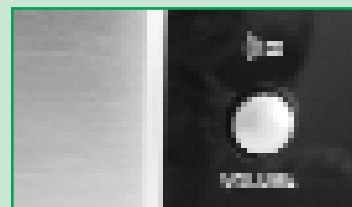
### Insufflation Medium: CO<sub>2</sub> Insufflation Rate

**Low:** approx. 2l/min.  
**Med:** approx. 8 l/min.  
**High:** approx. 40 l/min.  
**Auto:** automatic flow



### Irrigation Included

The *ML-G* has a gas pressure Irrigation function, which allows liquids irrigation. In combination with the MGB-Suction-/Irrigation instrument, simple handling and high flow Irrigation is guaranteed.



### Voice Feedback

All settings are confirmed acoustically through an adjustable speech module.

## GENERAL

| <i>Order-No.</i>            |   |
|-----------------------------|---|
| <b>670-95600</b>            | ML-G Insufflator 220 V  |
| <b>670-95601</b>            | ML-G Insufflator 110 V  |
| <i>Main Connection</i>      |   |
| Power supply                | 100 - 120 V/200 - 240 V   |
| Frequency                   | 50 - 60 Hz  |
| Power consumption           | 45 VA   |
| Fuse (~100 - 120 V)         | 2 x T 1.0 A/250 V (IEC 127)   |
| Fuse (~200 - 240 V)         | 2 x T 2.0 A/120 V (IEC 127)   |
| <i>Classification</i>       |   |
| Safety class                | 1 with potential equalization connection  |
| Protection                  | IP X 1  |
| Type                        | BF  |
| Approval                    | <b>CE</b>   |
| <i>Dimension and Weight</i> |   |
| Dimension (w/h/d)           | 400 x 200 x 400 mm (without gas bottle)   |
| Weight                      | 17.6 kg   |
| <i>Operating Conditions</i> |   |
| Operating temperature       | +10° C ~ +40° C   |
| Operating humidity          | 30 % ~ 75 %   |
| <i>Extent of Delivery</i>   |   |
| ML-G                        | <ul style="list-style-type: none"> <li>■ Silicone tube set for Insufflation</li> <li>■ Disposable Filter for Insufflation</li> <li>■ Adapter for Insufflation</li> <li>■ Silicone tube set for Irrigation</li> <li>■ Power cable</li> </ul> |
|                             | <ul style="list-style-type: none"> <li>■ User manual</li> </ul>   |
| <i>Interface</i>            |   |
| To patient                  | <ul style="list-style-type: none"> <li>■ Gas connection: conus</li> </ul>   |
| CO <sub>2</sub> connection  | <ul style="list-style-type: none"> <li>■ Irrigation connection: Luer (male)</li> <li>■ DIN</li> </ul>   |

## SPECIFICATION

| <i>Main Unit</i>   |  |
|--|--|
| Insufflation medium: CO <sub>2</sub> , Insufflation rate | <ul style="list-style-type: none"> <li>■ <b>Low:</b> approx. 2 l/min</li> <li>■ <b>Med:</b> approx. 8 l/min</li> <li>■ <b>High:</b> approx. 40 l/min</li> <li>■ <b>Auto:</b> automatic flow</li> </ul>                                 |
| Intra-abdominal working pressure                         | <ul style="list-style-type: none"> <li>■ 0-30 mm Hg infinitely selectable and limitable</li> <li>■ Maximal pressure of bottle: 80 bar</li> <li>■ Display of critical low bottle pressure</li> <li>■ Irrigation P+: 800 mbar</li> </ul> |

| <i>Order-No.</i>               | <i>Accessories</i>                            |
|--------------------------------|---|
| <b>670-95300</b>               | Silicone tube set for Insufflation            |
| <b>670-95310</b>               | CO <sub>2</sub> gas bottle 1l (empty)         |
| <b>670-95311</b>               | Key for CO <sub>2</sub> gas bottle connection |
| <b>670-95313</b>               | High pressure tube, GI:DIN, bottle: DIN       |
| <b>670-95314</b>               | High pressure tube, GI:DIN, bottle: PIN       |
| <b>670-95316</b>               | High pressure tube, GI:DIN, bottle: ITALY     |
| <b>See Laparoscopic-Folder</b> | Veress needle, different lengths              |
| <b>675-11203</b>               | Gas-filter, 25 pieces                         |
| <b>675-11202</b>               | Adapter for Insufflation                      |
| <b>670-95301</b>               | Silicone tube set for Irrigation              |
| <b>670-96330</b>               | Irrigation trocar, short (0.5 l)              |
| <b>670-96331</b>               | Irrigation trocar, long (1.0 l)               |
| <b>670-96325</b>               | Irrigation bottle holder for cart             |
| <b>670-96310</b>               | Filter for Irrigation, 10 pieces              |

## DISTO II DIGITAL STORAGE SYSTEM

Order-No. 470-62000



Still Image  
and Video Storage



### A Time Saving Storage System

With our new Digital Storage System DISTO II you are able to store:

- Live-image on CD in digital format or
- Still image on USB memory stick.

This system is very easy to use. By recording the operation with DISTO II you will have an excellent digital image on CD which can easy transfer files to PC. DISTO II generates brilliant image quality without any loss while transferring data to PC.

### Specification

- Real time direct recording of analog video signal on CD-RW
- Recording time according to picture quality:
 

|        |         |
|--------|---------|
| Normal | 80 min. |
| Fine   | 40 min. |
| S-Fine | 20 min. |
| X-Fine | 10 min. |
- Still image capturing on USB memory stick
- Foot-pedal remote control
- IR wireless remote control



### Easy Using System

Insert CD or stick and start recording pictures.



### USB Memory Stick



### Direct Recording

- Foot-pedal remote control
- IR wireless remote control

## GENERAL

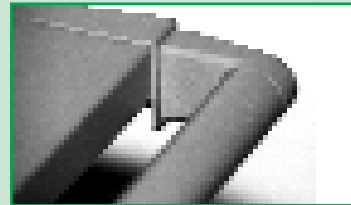
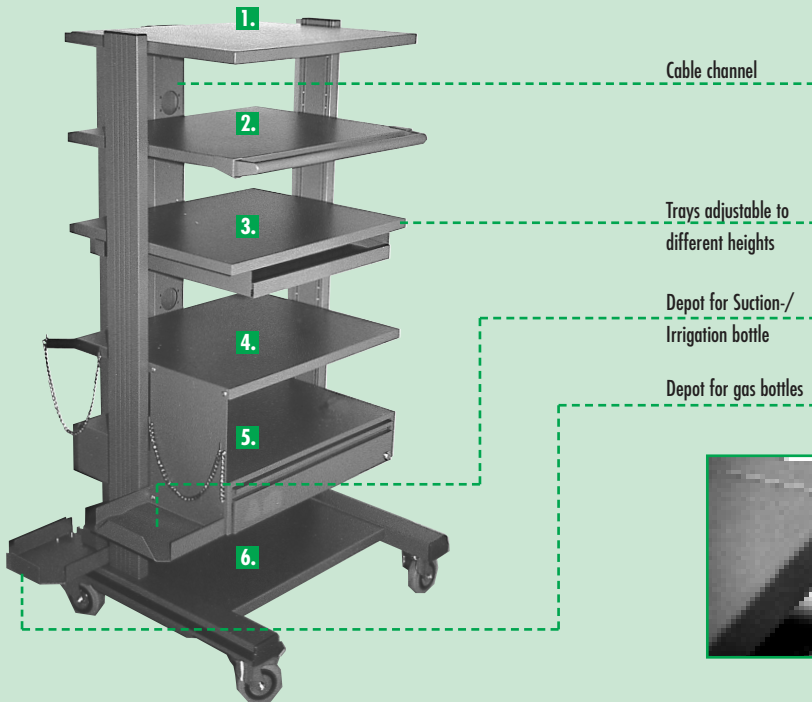
| <i>Order-No.</i>            |  |
|-----------------------------|--|
| <b>470-62000</b>            | DISTO II   |
| <i>Main Connection</i>      |  |
| Power supply selectable     | <ul style="list-style-type: none"> <li>■ 100-127 V AC</li> <li>■ 200-240 V AC</li> </ul>   |
| Frequency                   | 50-60 Hz   |
| Power consumption           | Max. 33 VA   |
| <i>Classification</i>       |  |
| Safety class                | –  |
| Protection                  | IP X 1   |
| Type                        | BF   |
| Approval                    | CE   |
| <i>Dimension and Weight</i> |  |
| Dimension (w/h/d)           | 400 x 120 x 340 mm   |
| Weight                      | 7.9 kg   |
| <i>Operating Conditions</i> |  |
| Operating temperature       | +10° C ~ +40° C  |
| Operating humidity          | 30 % ~ 75 %  |
| <i>Extent of Delivery</i>   |  |
| DISTO II                    | <ul style="list-style-type: none"> <li>■ Memory stick</li> <li>■ Foot-switch for remote</li> <li>■ IR remote control</li> <li>■ CD-RW</li> <li>■ S-VHS cable</li> <li>■ BNC cable</li> <li>■ Capturing software: DISTO XP</li> <li>■ Power cable</li> <li>■ User manual</li> </ul> |
| <i>Interface</i>            |  |
|                             | <ul style="list-style-type: none"> <li>■ 1 x Y/C (S-VHS) in</li> <li>■ 1 x Y/C (S-VHS) out</li> <li>■ 1 x composit (BNC) in</li> <li>■ 1 x composit (BNC) out</li> <li>■ 1 x remote</li> </ul>   |

## SPECIFICATION

| <i>Main Unit</i>                |                                |
|---------------------------------|--------------------------------|
| Video-format                    | MPEG 2 (4 different qualities) |
| Still image-format              | JPEG (200-300 KB)              |
| NTSC/PAL                        | Selectable                     |
| CD-Writer                       | RW (speed 8 x)                 |
| Remaining CD capacity indicator | On Screen Display              |
| Internal HDD                    | For backup                     |
| Hard disk copy                  | To CD                          |
| WINDOW MEDIA PLAYER             | Compatibility                  |

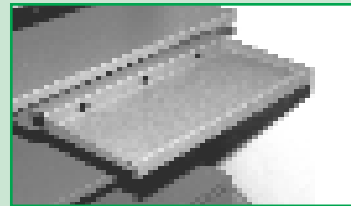
## ENDO-CART EC-2000 A

Order-No.: 670-80610



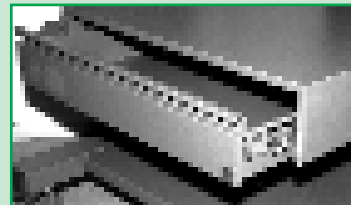
### Handle for Moving

Controllable positioning and moving of Endo-Cart.



### Special Tray for Keyboard

Pull-out tray for keyboard and storage.



### Lockable Drawer

Large sliding drawer (inside depth 100 mm) for storage of documents and camera.

### Intended Use

- Large cable channel with potential equalization pins and cover
- Gliding wheels with locking brakes
- Surface: metal-powder coating, easy-cleaning, resistant to disinfecting agents
- Dimension (w/h/d): 1390 mm x 710 mm x 700 mm
- Distance between stands: 185 mm
- Space for units (w/d): 600 mm x 480 mm
- Weight: 57 kg
- Stand for gas bottle: 180 mm x 190 mm
- Stand for Suction-/Irrigation bottle: 225 mm x 180 mm

### Stable Construction

#### Example Laparoscopy/Load Capacity:

1. Monitor (35 kg)
2. Light source/Camera (20 kg)
3. Insufflator (20 kg)
4. HF-Generator or Suction-/Irrigation unit (20 kg)
5. Recorder/Printer (20 kg)
6. Isolation Transformer (35 kg)



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